

Metastatic Oesophageal Carcinoma to the Paranasal Sinuses – A Case Report

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ABSTRACT

Metastasis to the paranasal sinuses is rare. We report a case of a patient with metastasis to the paranasal sinuses from carcinoma of the oesophagus. Our patient presented with symptoms mimicking the more common acute sinusitis. Although rare, metastatic disease of the paranasal sinuses should be considered especially in patients with a known primary carcinoma elsewhere presenting with sinu-nasal symptoms.

Keywords: rare, oesophageal carcinoma, metastasis, paranasal sinuses

INTRODUCTION

Metastatic diseases of the paranasal sinuses are rare. Many tumours from varied sites have been reported to have metastasized to the paranasal sinuses. We present a case of a patient with an oesophageal carcinoma with such a metastasis.

CASE REPORT

A 70-year-old Chinese lady first presented in March 1994 with the complaint of painless dysphagia associated with loss of appetite and weight.

Oesophagoscopy revealed a 3.5 cm constrictive growth over her mid-thoracic oesophagus. Histology confirmed moderately differentiated squamous cell carcinoma.

She was also diagnosed to have a second primary tumour over the middle lobe of her right lung on the pre-operative chest X-ray and computerised tomography of her thoracic cavity. Subsequent thoracoscopic biopsy confirmed a small lymphocytic lymphoma and this was treated conservatively by the medical oncologist as it was a slow growing tumour.

She subsequently underwent a total oesophagectomy with a stomach interposition reconstruction in April 1994 and also received post-operative radiotherapy. Histology showed the tumour involving the deep muscles of the oesophagus as well as the adventitia. No liver or nodal metastases were found intra-operatively. Post-operatively she recovered uneventfully with minimum symptoms over the subsequent one year.

However in May 1995, she was found to have nodal recurrence over the pylorus of the stomach when she presented with projectile vomiting. This was treated with a second course of palliative radiotherapy.

In October 1995, she complained of left nasal blockage with left malar pain and blood-stained nasal discharge of a few days' duration. She was then referred to the Otolaryngologist. Endoscopy of her nose then revealed a haemorrhagic polyp arising from her left middle meatus and a very congested left nasal cavity. Computerised tomographic scan of her sinuses showed extensive opacification of the left nasal cavity and paranasal sinuses (Fig 1). She was initially treated for acute sinusitis with no improvement. An endoscopic sinus surgery was performed in November 1995 with the aim of draining her sinuses and to relieve her obstructive symptoms. Diseased haemorrhagic mucosa with pus was found extensively over her left antrum and ethmoidal sinuses. Multiple biopsies revealed moderately differentiated squamous cell carcinoma consistent with a metastasis from an oesophageal primary.

There was little improvement of her sinu-nasal symptoms post-operatively. Her general condition deteriorated rapidly and she subsequently succumbed to her disease.

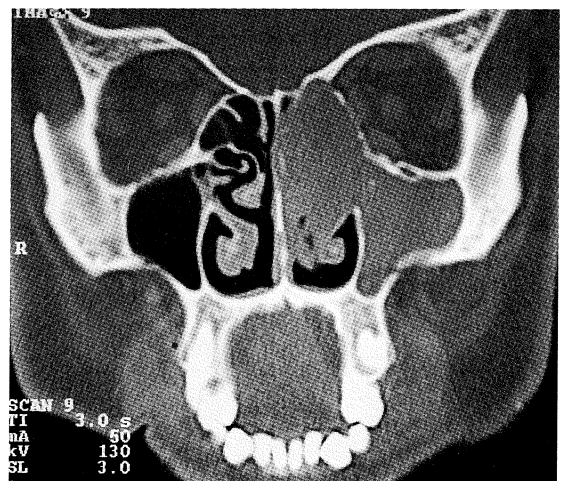


Fig 1 – Computerised tomographic scan of the paranasal sinuses showing extensive disease of the left ethmoidal and maxillary sinuses.

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Pathology

The lung specimen received in April 1994 was a thoroscopic biopsy showing a small lymphocytic lymphoma composed of a dense monotonous infiltrate of predominantly small lymphoid cells with nuclear irregularities and scant cytoplasm, infiltrating the alveolar ducts with no evidence of a carcinoma (Fig 2).

A week later, an 11 cm oesophagectomy specimen was received and it contained a 3.5 cm tumour in the mid portion, 4 cm from the proximal resection margin. Microscopically, this was a moderately differentiated squamous cell carcinoma infiltrating into the muscularis propria and focally into the adventitia. The tumour formed irregular infiltrating nests of polygonal cells with enlarged nuclei and prominent nucleoli. Areas of keratinisation were seen (Fig 3). The margins of resection and lymph nodes were free of tumour. A year later, a small lymph node isolated from the region of the pylorus showed metastatic squamous cell carcinoma, with features similar to those seen in the oesophagectomy specimen. The final specimen received from this patient in November 1995 showed multiple pieces of haemorrhagic ethmoid and maxillary antral tissue composed of inflamed respiratory type mucosa containing irregular and sharply defined nests of polygonal tumour cells with ample eosinophilic cytoplasm and nuclear features similar to those seen in the oesophageal tumour. Focal areas of necrosis and apoptosis are present (Fig 4). The features of this maxillary antral tumour are consistent with a metastasis from a squamous cell carcinoma of the oesophagus.

DISCUSSION

Primary tumours of the paranasal sinuses are rare. It has been estimated that they constitute only 3% of all malignant tumours of the upper aerodigestive tract⁽¹⁾. Metastatic tumours to the nose and paranasal sinuses are even rarer. Various authors quoted that 0.25% to 5% of all sinus neoplasms are metastatic in origin⁽¹⁾. Kent et al in his review of literature back to 1900, found a total of only 55 cases of metastasis to the maxillary antrum⁽²⁾.

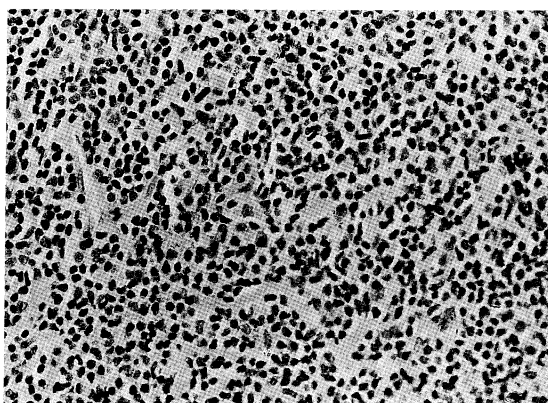


Fig 2 – Small lymphocytic lymphoma (H&E X 400 original magnification).

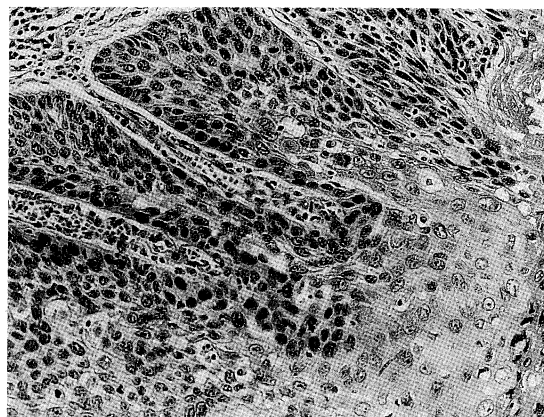


Fig 3 – Squamous cell carcinoma (H&E X400 original magnification).

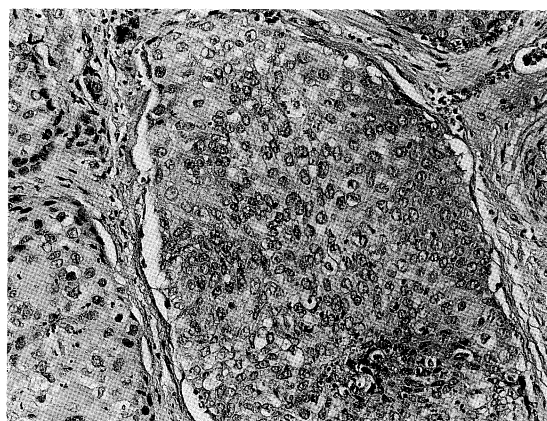


Fig 4 – Metastatic tumour (H&E X 400 original magnification).

Renal cell carcinoma is by far the most common malignancy to metastasize to the paranasal sinuses. It constitutes at least 50% of cases⁽³⁻⁵⁾. This is followed by carcinoma of the breast^(6,7). The other common tumours that metastasize to the paranasal sinuses are from the thyroid^(5,7), bladder⁽⁸⁾, lungs⁽⁹⁾, prostate⁽¹⁰⁾ and skin (melanoma)⁽⁴⁾.

Due to their rare occurrence, many of the metastatic tumours are diagnosed by chance and at a late stage. In our patient, she was initially treated for acute sinusitis and the diagnosis of metastasis was only made when surgical intervention was done to drain her sinuses. In fact, some of the metastatic tumours to the paranasal sinuses reported in the literature were post-mortem findings⁽¹⁾.

The diagnosis of a metastatic disease to the paranasal sinuses may be relatively easy when the histologic features are distinctive and characterise the organ of the primary lesion as in renal cell carcinoma. However when the histology is that of squamous cell carcinoma, it may be mistaken for a primary tumour of the paranasal sinuses. This is especially so if the true primary tumours remain silent for long period of time after their nasal metastasis has been diagnosed and treated. Matsumoto and Yanagihara reported a case of a renal primary, which was diagnosed two years after the antral metastasis⁽¹¹⁾. Most of the reported cases of squamous carcinoma metastasizing to the paranasal sinuses were from primaries in the lungs and bladder^(7,8). On the other hand, the paranasal metastasis may present many years after the primary

tumour has been treated. Bernstein mentioned a case of paranasal sinus metastasis, 8 years after nephrectomy was done for renal cell carcinoma⁽⁴⁾. In our patient, the paranasal metastasis presented itself almost a year and a half after the primary tumour was removed.

The maxillary sinus is the most common site of paranasal sinuses metastasis. Approximately 50% of the metastasis to the paranasal sinuses involve the antrum⁽⁴⁾. This is followed in decreasing order of frequency by the ethmoidal sinuses, frontal sinuses, nasal cavity and sphenoid sinuses⁽¹⁾. In this patient, the metastasis was already extensive upon diagnosis. It is difficult to comment as to which sinus was first involved. Unilateral sinus involvement is the norm but bilateral sinu-nasal metastases have also been reported⁽¹¹⁾.

Presentation of symptoms varies, depending on the site and the type of tumour involved. In our patient, tumour obstruction of the sinus ostia with superimposed secondary infection produced a clinical picture quite similar to that of acute inflammatory diseases of the sinuses. Epistaxis is more common in renal cell carcinoma metastasis due to the vascularity of the tumour. In fact, epistaxis was the chief presenting complaint of more than 70% of renal cell carcinoma metastases to the paranasal sinuses⁽¹²⁾. Headaches with cranial nerve palsies (II, III, IV, V and VI) are also seen in sphenoidal metastases which involve the cavernous sinus⁽¹²⁾.

The route of metastasis has been well described by various authors. Batson, as early as 1940, described the role of the vertebral veins in the spread of the tumour cells⁽¹³⁾. Presence of a rich valveless interconnecting veins in the vertebrae allows intra-abdominal and intrathoracic tumour metastases to bypass the heart and lungs and communicate directly with the veins of the head and neck region. This retrograde flow occurs when there is an increase in intra-thoracic or intra-abdominal pressure as in the case of a rapidly expanding malignant tumour. The vertebral veins in turn communicate superiorly with the pterygoid plexus, cavernous sinus and superior portion of the pharyngeal plexus, hence providing a pathway for metastasis to the paranasal sinuses.

In general, prognosis of patients with metastatic carcinoma to the paranasal sinuses is poor. Many patients die shortly after the diagnoses are made. Longer term survival rate is nevertheless possible⁽¹⁾. A five-year survival rate for metastatic renal cell carcinoma in the paranasal sinuses has been reported to be in the region of 35%⁽¹²⁾.

In our patient, her poor prognosis has been pre-determined by her advanced primary oesophageal tumour and subsequent intra-abdominal nodal recurrences. Her paranasal metastasis put her further in an unfavourable outcome.

CONCLUSION

Metastatic diseases of the paranasal sinuses are rare. Diagnosis in many cases are incidental and made at a late stage. Awareness of this disease is hence necessary.

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